TIME OF RUN 12:08:22.6

DATE OF RUN 01/08/99

INPUT FILE NAME: 25-mn-h.inp

OUTPUT FILE NAME: 25-mn-h.out

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DOE Field Office, Idaho, Contract Number DE-AC07-76ID01570.

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Cambridge University Press.

*	GWSCREEN	*	
*	Version Control Copy, Version 2.4a	*	
*	A semi-analytical model for the assessment	*	
*	of the groundwater pathway from the leaching	, *	
*	of surficial and buried contamination and	*	
*	release of contaminants from percolation ponds	3 *	
*	02-28-95	*	
*	Arthur S. Rood	*	
*	Idaho National Engineering Laboratory	*	
*	EG&G Idaho Inc.	*	
*	Subsurface and Environmental Modeling Unit	*	
*	PO Box 1625	*	
*	Idaho Falls, Idaho 83415	*	
* *	************	***	
>>>	TITLE OF PROJECT:		
' Ma	anganese, ARA-25, hazard quotient'	TITLE	
~~-	ن من	ت الما الما الما الما الما الما الما الم	
G A U	USSIAN QUADRATURE SOLUTION		
MOI	DEL OPTIONS		
IMO	DDE: 6		
KFI	KFLAG: 1 (0) CONC VS TIME; (1) PEAK CONC AND LIMITING SOIL CONC		
<pre>IMODEL:1 (1) SURF OR BURIED SOURCE; (2) POND SOURCE; (3) TABULATED SOURCE FUNCTION</pre>			
IT	PE:0 (0) VERT AVG; (1) NON-VERT AVG; (2) AVG F	ROM 0 TO ZD	
>>:	INPUT DATA		
:	*******	****	
NU	MBER OF RADIOACTIVE PROGENY 0		
LEI	NGTH OF SOURCE PARALLEL TO GW FLOW (m) 7.3	30E+00	

WIDTH OF SOURCE PERPENDICULAR TO GW FLOW (m)	4.90E+00
THICKNESS OF SOURCE (m)	1.50E+00
PERCOLATION RATE (darcy vel m/y)	1.00E-01
VOLUMETRIC WATER CONTENT IN SOURCE	4.10E-01
VOLUMETRIC WATER CONTENT IN UNSATURATED ZONE	4.10E-01
BULK DENSITY AT SOURCE (g/cm**3)	1.50E+00
SORPTION COEFFICIENT AT SOURCE (ml/g)	5.00E+01
BULK DENSITY IN UNSAT ZONE (g/cm**3)	1.90E+00
UNSATURATED ZONE THICKNESS (m)	5.80E+00
SORPTION COEFFICIENT IN UNSAT ZONE (ml/g)	5.00E+00
OPTIONAL LOSS RATE CONSTANT FOR SOURCE (y**-1)	0.00E+00
INITIAL MASS OR ACTIVITY (mg or Ci)	1.14E+08
MOLECULAR WEIGHT (g/mole)	5.49E+01
SOLUBILITY LIMIT (mg/L)	1.00E+06
HALF-LIFE(S) OF CONTAMINANT AND PROGENY (y)	1.00E+38
BULK DENSITY OF AQUIFER (g/cm**3)	1.90E+00
POROSITY OF AQUIFER	1.00E-01
SORPTION COEFFICIENT(S) IN AQUIFER (ml/g)	5.00E+00
DISPERSIVITY X DIRECTION (m)	9.00E+00
DISPERSIVITY Y DIRECTION (m)	4.00E+00
DISPERSIVITY Z DIRECTION (m)	1.00E-09
PORE VELOCITY (m/y)	5.70E+02
WELL SCREEN THICKNESS (m)	1.50E+01
DISTANCE TO RECEPTOR ALONG X AXIS (m)	3.65E+00
DISTANCE TO RECEPTOR ALONG Y AXIS (m)	0.00E+00
DISTANCE TO RECEPTOR ALONG Z AXIS (m)	0.00E+00
NON-CARCINOGENIC REFERENCE DOSE RfD (mg/kg/d)	1.40E-01
UNITS OF CONTAMINANT	mg

	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
LIMITING SOIL CONCENTRATION CALCULATION		
>>> VALUES CALCULATED IN SOURCE SU	BROUTINE	
**********	******	
LEACH RATE CONSTANT (1/y)	8.8406E-04	
UNSATURATED PORE VELOCITY (m/y)	2.4390E-01	
DECAY CONSTANT(S) (1/y)	6.9315E-39	
RETARDATION FACTOR(S) (SATURATED)	9.6000E+01	
RETARDATION FACTOR (UNSATURATED)	2.4171E+01	
SOLUBILITY LIMITED MASS (mg)	4.0461E+12	
SOLUBILITY LIMITED ACTIVITY (Ci)	0.0000E+00	
TRANSIT TIME IN UNSAT ZONE (years)	5.7478E+02	
FRACTION DECAYED DURING UNSAT TRAN	SPORT 0.0000E+00	
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	الله الله الله الله الله الله الله الله	
>>> EXPOSURE DATA FOR LIMITING SOIL CONCENTRATION		
**********	******	
INTEGRATION TIME (years)	30	
BODY WEIGHT (kg)	7.000E+01	
AVERAGING TIME (days)	1.100E+04	
WATER INTAKE RATE (L/d)	2.000E+00	
EXPOSURE FREQUENCY (days/year)	3.500E+02	
EXPOSURE DURATION (years)	3.000E+01	
RADIOLOGICAL DOSE LIMIT (rem/y)	4.000E-03	
CARCINOGENIC RISK CRITERIA	1.000E-04	
HAZARD QUOTIENT	1.000E+00	

>>> RESULTS OF CALCULATIONS

LIMITING GROUNDWATER CONCENTRATION (mg/L): 5.13E+00

MAXIMUM GROUNDWATER CONCENTRATION (mg/L): 6.04E-03

AVERAGE GROUNDWATER CONCENTRATION (mg/L): 5.93E-03

HAZARD QUOTIENT FOR INPUT MASS: 1.16E-03

PEAK TIME (y): 5.821525E+02

LIMITING SOIL CONCENTRATION (mg/m**3): 1.838E+09

LIMITING SOIL CONCENTRATION (mg/kg): 1.226E+06

LIMITING INVENTORY IN SOIL (mg): 9.864E+10

'Ra-226 Group 1, base sed, risk'

15.0 5.8

3.65 0. 0.

TITLE

1 0 KFLAG, NPROG

30 0 INTIME

7.3 4.9 1.5 AL, WA, THICKS

0.1 .41 .41 PERC, THETAS, THETAU

1.5 0. 0. RHOS, ZKDS, RC2

1.9 0. RHOU, ZKDU

1.6E3 ATHALF

2.41E-03 226. 1.0e6 QI, ZMW, SL

1.9 .1 0. RHOA, PHI, AKD

9. 4. 1. 570.0 AX, AY, VX

2 1 IMODE, IMODEL

9E2 2. 7.58E5 .41 0. 165. RMI, TOPER, PNDFLX, THETAP, EVAP, WAEFF

THICK, DEPTH

XD, YD

3e2 SFACTOR

70. 2.55e4 2. 350. 30. 4.e-3 1.0e-4 1. BW AT WI EF ED DLIM CRISK HQ

1 6 7 1.0e-6 ISOLVE, JSTART, JMAX, EPS

1 NTIMES

TIME OF RUN 12:11:20.5

DATE OF RUN 01/08/99

INPUT FILE NAME: 25-ra6-r.inp

OUTPUT FILE NAME: 25-ra6-r.out

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*	of surficial and buried contamination and	*
*	release of contaminants from percolation ponds	*
*	02-28-95	*
*	Arthur S. Rood	*
*	Idaho National Engineering Laboratory	*
*	EG&G Idaho Inc.	*
*	Subsurface and Environmental Modeling Unit	*
*	PO Box 1625	*
*	Idaho Falls, Idaho 83415	*
***	***********	**
>>>	TITLE OF PROJECT:	
	TITLE OF PROJECT: -226 Group 1, base sed, risk'	TITLE
'Ra-	-226 Group 1, base sed, risk'	
'Ra- ~~~ GAUS	-226 Group 1, base sed, risk'	
'Ra- GAUS MODI	-226 Group 1, base sed, risk'	
'Ra-GAUS	-226 Group 1, base sed, risk' SSIAN QUADRATURE SOLUTION EL OPTIONS	~~~~~~
'Ra-GAUS MODI IMOI KFL	-226 Group 1, base sed, risk' SSIAN QUADRATURE SOLUTION EL OPTIONS DE: 2 AG: 1 (0) CONC VS TIME; (1) PEAK CONC AND LIMITIN DEL:1 (1) SURF OR BURIED SOURCE; (2) POND SOURCE	G SOIL CONC
'Ra- GAUS MODI IMOI KFLI IMOI FUNCT	-226 Group 1, base sed, risk' SSIAN QUADRATURE SOLUTION EL OPTIONS DE: 2 AG: 1 (0) CONC VS TIME; (1) PEAK CONC AND LIMITIN DEL:1 (1) SURF OR BURIED SOURCE; (2) POND SOURCE	G SOIL CONC
GAUS MODI IMOI KFLI IMOI IMOI IMOI IMOI	-226 Group 1, base sed, risk' SSIAN QUADRATURE SOLUTION EL OPTIONS DE: 2 AG: 1 (0) CONC VS TIME; (1) PEAK CONC AND LIMITIN DEL:1 (1) SURF OR BURIED SOURCE; (2) POND SOURCE	G SOIL CONC
GAUS GAUS MODI IMOI KFLS IMOI FUNCT: ITY:	-226 Group 1, base sed, risk' SSIAN QUADRATURE SOLUTION EL OPTIONS DE: 2 AG: 1 (0) CONC VS TIME; (1) PEAK CONC AND LIMITIN DEL:1 (1) SURF OR BURIED SOURCE; (2) POND SOURCE ION PE:0 (0) VERT AVG; (1) NON-VERT AVG; (2) AVG FR	G SOIL CONC ;; (3) TABULATED SOURCE
'Ra- GAUS MODI IMOI KFL: IMOI FUNCT: ITY: >>>	-226 Group 1, base sed, risk' SSIAN QUADRATURE SOLUTION EL OPTIONS DE: 2 AG: 1 (0) CONC VS TIME; (1) PEAK CONC AND LIMITIN DEL:1 (1) SURF OR BURIED SOURCE; (2) POND SOURCE ION PE:0 (0) VERT AVG; (1) NON-VERT AVG; (2) AVG FR	G SOIL CONC ;; (3) TABULATED SOURCE

WIDTH OF SOURCE PERPENDICULAR TO GW FLOW (m)	4.90E+00
THICKNESS OF SOURCE (m)	1.50E+00
PERCOLATION RATE (darcy vel m/y)	1.00E-01
VOLUMETRIC WATER CONTENT IN SOURCE	4.10E-01
VOLUMETRIC WATER CONTENT IN UNSATURATED ZONE	4.10E-01
BULK DENSITY AT SOURCE (g/cm**3)	1.50E+00
SORPTION COEFFICIENT AT SOURCE (ml/g)	0.00E+00
BULK DENSITY IN UNSAT ZONE (g/cm**3)	1.90E+00
UNSATURATED ZONE THICKNESS (m)	5.80E+00
SORPTION COEFFICIENT IN UNSAT ZONE (ml/g)	0.00E+00
OPTIONAL LOSS RATE CONSTANT FOR SOURCE (y**-1)	0.00E+00
INITIAL MASS OR ACTIVITY (mg or Ci)	2.41E-03
MOLECULAR WEIGHT (g/mole)	2.26E+02
SOLUBILITY LIMIT (mg/L)	1.00E+06
HALF-LIFE(S) OF CONTAMINANT AND PROGENY (y)	1.60E+03
BULK DENSITY OF AQUIFER (g/cm**3)	1.90E+00
POROSITY OF AQUIFER	1.00E-01
SORPTION COEFFICIENT(S) IN AQUIFER (ml/g)	0.00E+00
DISPERSIVITY X DIRECTION (m)	9.00E+00
DISPERSIVITY Y DIRECTION (m)	4.00E+00
DISPERSIVITY Z DIRECTION (m)	1.00E+00
PORE VELOCITY (m/y)	5.70E+02
WELL SCREEN THICKNESS (m)	1.50E+01
DISTANCE TO RECEPTOR ALONG X AXIS (m)	3.65E+00
DISTANCE TO RECEPTOR ALONG Y AXIS (m)	0.00E+00
DISTANCE TO RECEPTOR ALONG Z AXIS (m)	0.00E+00
RADIOLOGICAL CARCINOGENIC SLOPE FACTOR (1/Ci)	3.00E+02
UNITS OF CONTAMINANT	Ci

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		
LIMITING SOIL CONCENTRATION CALCULATION		
>>> INITIAL ACTIVITY CONVERTED TO	MASS (mg) 2.44E+00	
>>> VALUES CALCULATED IN SOURCE SU	BROUTINE	
*********	******	
LEACH RATE CONSTANT (1/y)	1.6260E-01	
UNSATURATED PORE VELOCITY (m/y)	2.4390E-01	
DECAY CONSTANT(S) (1/y)	4.3322E-04	
RETARDATION FACTOR(S) (SATURATED)	1.0000E+00	
RETARDATION FACTOR (UNSATURATED)	1.0000E+00	
SOLUBILITY LIMITED MASS (mg)	2.1999E+10	
SOLUBILITY LIMITED ACTIVITY (Ci)	2.1767E+07	
TRANSIT TIME IN UNSAT ZONE (years)	2.3780E+01	
FRACTION DECAYED DURING UNSAT TRAN	ISPORT 1.0249E-02	
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		
>>> EXPOSURE DATA FOR LIMITING SOI	L CONCENTRATION	
*********	*******	
INTEGRATION TIME (years)	30	
BODY WEIGHT (kg)	7.000E+01	
AVERAGING TIME (days)	2.550E+04	
WATER INTAKE RATE (L/d)	2.000E+00	
EXPOSURE FREQUENCY (days/year)	3.500E+02	
EXPOSURE DURATION (years)	3.000E+01	
RADIOLOGICAL DOSE LIMIT (rem/y)	4.000E-03	
CARCINOGENIC RISK CRITERIA	1.000E-04	
HAZARD QUOTIENT	1.000E+00	

>>> RESULTS OF CALCULATIONS

CARCINOGENIC RISK CALCULATION FOR RADIONUCLIDES

MAXIMUM GW CONCENTRATION FOR MBR #1: 2.31E-11 Ci/L

AVERAGE GW CONCENTRATION FOR MBR #1: 4.77E-12 Ci/L RISK = 3.00E-05

MAXIMUM CARCINOGENIC RISK: 3.00E-05

LIMITING PARENT GROUNDWATER CONC. (Ci/L): 1.59E-11

PEAK TIME (y): 2.385680E+01

LIMITING SOIL CONCENTRATION (Ci/m**3): 1.495E-04

LIMITING SOIL CONCENTRATION (Ci/kg): 9.965E-08

LIMITING INVENTORY IN SOIL (Ci): 8.020E-03

LIMITING INVENTORY IN SOIL (mg): 8.105E+00

SPECIFIC ACTIVITY (Ci/g): 9.895E-01

'Sr-90, ARA-25, risk' TITLE

1 0 KFLAG, NPROG

30 0 INTIME

7.3 4.9 1.5 AL, WA, THICKS

0.1 .41 .41 PERC, THETAS, THETAU

1.5 24. 0. RHOS, ZKDS, RC2

1.9 2.4 RHOU, ZKDU

2.86E1 ATHALF

5.91E-03 90. 1.0e6 QI, ZMW, SL

1.9 .1 2.4 RHOA, PHI, AKD

9. 4. 1. 570.0 AX, AY, VX

15.0 5.8 THICK, DEPTH

2 1 IMODE, IMODEL

9E2 2. 7.58E5 .41 0. 165. RMI, TOPER, PNDFLX, THETAP, EVAP, WAEFF

5.6e+1 SFACTOR

3.65 O. O. XD, YD

70. 2.55e4 2. 350. 30. 4.e-3 1.0e-4 1. BW AT WI EF ED DLIM CRISK HQ

1 6 7 1.0e-6 ISOLVE, JSTART, JMAX, EPS

1 NTIMES

TIME OF RUN 12:10:39.3

DATE OF RUN 01/08/99

INPUT FILE NAME: 25-sr9-r.inp

OUTPUT FILE NAME: 25-sr9-r.out

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	* release of contaminants from percolation ponds	*
	* 02-28-95	*
	* Arthur S. Rood	*
	* Idaho National Engineering Laboratory	*
	* EG&G Idaho Inc.	*
	* Subsurface and Environmental Modeling Unit	*
	* PO Box 1625	*
	* Idaho Falls, Idaho 83415	*
	************	* *
	>>> TITLE OF PROJECT:	
	'Sr-90, ARA-25, risk' TITLE	
,	GAUSSIAN QUADRATURE SOLUTION MODEL OPTIONS	~~~~~~
	IMODE: 2	
	KFLAG: 1 (0)CONC VS TIME; (1)PEAK CONC AND LIMITIN	G SOIL CONC
	IMODEL:1 (1) SURF OR BURIED SOURCE; (2) POND SOURCE	; (3) TABULATED SOURCE
	ITYPE:0 (0) VERT AVG; (1) NON-VERT AVG; (2) AVG FR	OM 0 TO ZD
	>>> INPUT DATA	
	>>> INPUT DATA	****

7.30E+00

LENGTH OF SOURCE PARALLEL TO GW FLOW (m)

WIDTH OF SOURCE PERPENDICULAR TO GW FLOW (m)	4.90E+00
THICKNESS OF SOURCE (m)	1.50E+00
PERCOLATION RATE (darcy vel m/y)	1.00E-01
VOLUMETRIC WATER CONTENT IN SOURCE	4.10E-01
VOLUMETRIC WATER CONTENT IN UNSATURATED ZONE	4.10E-01
BULK DENSITY AT SOURCE (g/cm**3)	1.50E+00
SORPTION COEFFICIENT AT SOURCE (ml/g)	2.40E+01
BULK DENSITY IN UNSAT ZONE (g/cm**3)	1.90E+00
UNSATURATED ZONE THICKNESS (m)	5.80E+00
SORPTION COEFFICIENT IN UNSAT ZONE (ml/g)	2.40E+00
OPTIONAL LOSS RATE CONSTANT FOR SOURCE (y**-1)	0.00E+00
INITIAL MASS OR ACTIVITY (mg or Ci)	5.91E-03
MOLECULAR WEIGHT (g/mole)	9.00E+01
SOLUBILITY LIMIT (mg/L)	1.00E+06
HALF-LIFE(S) OF CONTAMINANT AND PROGENY (y)	2.86E+01
BULK DENSITY OF AQUIFER (g/cm**3)	1.90E+00
POROSITY OF AQUIFER	1.00E-01
SORPTION COEFFICIENT(S) IN AQUIFER (ml/g)	2.40E+00
DISPERSIVITY X DIRECTION (m)	9.00E+00
DISPERSIVITY Y DIRECTION (m)	4.00E+00
DISPERSIVITY Z DIRECTION (m)	1.00E+00
PORE VELOCITY (m/y)	5.70E+02
WELL SCREEN THICKNESS (m)	1.50E+01
DISTANCE TO RECEPTOR ALONG X AXIS (m)	3.65E+00
DISTANCE TO RECEPTOR ALONG Y AXIS (m)	0.00E+00
DISTANCE TO RECEPTOR ALONG Z AXIS (m)	0.00E+00
RADIOLOGICAL CARCINOGENIC SLOPE FACTOR (1/Ci)	5.60E+01
UNITS OF CONTAMINANT	Ci

LIMITING SOIL CONCENTRATION CALCULATION		
>>> INITIAL ACTIVITY CONVERTED TO	MASS (mg) 4.25E-02	
>>> VALUES CALCULATED IN SOURCE SU	BROUTINE	
*********	******	
LEACH RATE CONSTANT (1/y)	1.8310E-03	
UNSATURATED PORE VELOCITY (m/y)	2.4390E-01	
DECAY CONSTANT(S) (1/y)	2.4236E-02	
RETARDATION FACTOR(S) (SATURATED)	4.6600E+01	
RETARDATION FACTOR (UNSATURATED)	1.2122E+01	
SOLUBILITY LIMITED MASS (mg)	1.9536E+12	
SOLUBILITY LIMITED ACTIVITY (Ci)	2.7155E+11	
TRANSIT TIME IN UNSAT ZONE (years)	2.8826E+02	
FRACTION DECAYED DURING UNSAT TRAN	SPORT 9.9908E-01	
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		
>>> EXPOSURE DATA FOR LIMITING SOI	L CONCENTRATION	
*********	*****	
INTEGRATION TIME (years)	30	
BODY WEIGHT (kg)	7.000E+01	
AVERAGING TIME (days)	2.550E+04	
WATER INTAKE RATE (L/d)	2.000E+00	
EXPOSURE FREQUENCY (days/year)	3.500E+02	
EXPOSURE DURATION (years)	3.000E+01	
RADIOLOGICAL DOSE LIMIT (rem/y)	4.000E-03	
CARCINOGENIC RISK CRITERIA	1.000E-04	
HAZARD QUOTIENT	1.000E+00	

#### >>> RESULTS OF CALCULATIONS

************

### CARCINOGENIC RISK CALCULATION FOR RADIONUCLIDES

MAXIMUM GW CONCENTRATION FOR MBR #1: 5.50E-16 Ci/L

AVERAGE GW CONCENTRATION FOR MBR #1: 4.23E-16 Ci/L RISK = 4.98E-10

MAXIMUM CARCINOGENIC RISK: 4.98E-10

LIMITING PARENT GROUNDWATER CONC. (Ci/L): 8.50E-11

PEAK TIME (y): 2.918318E+02

LIMITING SOIL CONCENTRATION (Ci/m**3): 2.214E+01

LIMITING SOIL CONCENTRATION (Ci/kg): 1.476E-02

LIMITING INVENTORY IN SOIL (Ci): 1.188E+03

LIMITING INVENTORY IN SOIL (mg): 8.546E+03

SPECIFIC ACTIVITY (Ci/g): 1.390E+02

'U-235, ARA-25, risk'

TITLE

1 0

KFLAG, NPROG

30 0

INTIME

7.3 4.9 1.5

AL, WA, THICKS

0.1 .41 .41

PERC, THETAS, THETAU

1.5 6. 0.

RHOS, ZKDS, RC2

1.9 0.6

RHOU, ZKDU

7.04E8

ATHALF

2.21E-04 235. 1.0e6

QI, ZMW, SL

1.9 .1 0.6

RHOA, PHI, AKD

9. 4. 1. 570.0

AX, AY, VX

15.0 5.8

THICK, DEPTH

2 1

IMODE, IMODEL

9E2 2. 7.58E5 .41 0. 165.

RMI, TOPER, PNDFLX, THETAP, EVAP, WAEFF

4.7E+1

SFACTOR

3.65 0. 0.

XD, YD

70. 2.55e4 2. 350. 30. 4.e-3 1.0e-4 1. BW AT WI EF ED DLIM CRISK HQ

1 6 7 1.0e-6

ISOLVE, JSTART, JMAX, EPS

1

NTIMES

TIME OF RUN 12:11:51.5

DATE OF RUN 01/08/99

INPUT FILE NAME: 25-u5-r.inp

OUTPUT FILE NAME: 25-u5-r.out

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	* Subsurface and Environmental Modeling Unit	*
	* PO Box 1625	*
	* Idaho Falls, Idaho 83415	*
	***************	**
	>>> TITLE OF PROJECT:	
	'U-235, ARA-25, risk' TITLE	
	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	of the the that the the the the
	GAUSSIAN QUADRATURE SOLUTION	
	MODEL OPTIONS	
	IMODE: 2	
	KFLAG: 1 (0) CONC VS TIME; (1) PEAK CONC AND LIMITING	S SOIL CONC
F	IMODEL:1 (1) SURF OR BURIED SOURCE; (2) POND SOURCE; UNCTION	(3) TABULATED SOURCE
	ITYPE:0 (0) VERT AVG; (1) NON-VERT AVG; (2) AVG FRO	OM O TO ZD
	>>> INPUT DATA	
	************	*****
	NUMBER OF RADIOACTIVE PROGENY 0	
	LENGTH OF SOURCE PARALLEL TO GW FLOW (m) 7.30)E+00

MITORY OF COURSE PERFECUENCE	
WIDTH OF SOURCE PERPENDICULAR TO GW FLOW (m)	4.90E+00
THICKNESS OF SOURCE (m)	1.50E+00
PERCOLATION RATE (darcy vel m/y)	1.00E-01
VOLUMETRIC WATER CONTENT IN SOURCE	4.10E-01
VOLUMETRIC WATER CONTENT IN UNSATURATED ZONE	4.10E-01
BULK DENSITY AT SOURCE (g/cm**3)	1.50E+00
SORPTION COEFFICIENT AT SOURCE (ml/g)	6.00E+00
BULK DENSITY IN UNSAT ZONE (g/cm**3)	1.90E+00
UNSATURATED ZONE THICKNESS (m)	5.80E+00
SORPTION COEFFICIENT IN UNSAT ZONE (ml/g)	6.00E-01
OPTIONAL LOSS RATE CONSTANT FOR SOURCE (y**-1)	0.00E+00
INITIAL MASS OR ACTIVITY (mg or Ci)	2.21E-04
MOLECULAR WEIGHT (g/mole)	2.35E+02
SOLUBILITY LIMIT (mg/L)	1.00E+06
HALF-LIFE(S) OF CONTAMINANT AND PROGENY (y)	7.04E+08
BULK DENSITY OF AQUIFER (g/cm**3)	1.90E+00
POROSITY OF AQUIFER	1.00E-01
SORPTION COEFFICIENT(S) IN AQUIFER (ml/g)	6.00E-01
DISPERSIVITY X DIRECTION (m)	9.00E+00
DISPERSIVITY Y DIRECTION (m)	4.00E+00
DISPERSIVITY Z DIRECTION (m)	1.00E+00
PORE VELOCITY (m/y)	5.70E+02
WELL SCREEN THICKNESS (m)	1.50E+01
DISTANCE TO RECEPTOR ALONG X AXIS (m)	3.65E+00
DISTANCE TO RECEPTOR ALONG Y AXIS (m)	0.00E+00
DISTANCE TO RECEPTOR ALONG Z AXIS (m)	0.00E+00
RADIOLOGICAL CARCINOGENIC SLOPE FACTOR (1/Ci)	4.70E+01
UNITS OF CONTAMINANT	Ci

LIMITING SOIL CONCENTRATION CALCULATION		
>>> INITIAL ACTIVITY CONVERTED TO	MASS (mg) 1.02E+05	
>>> VALUES CALCULATED IN SOURCE SU	BROUTINE	
*********	******	
LEACH RATE CONSTANT (1/Y)	7.08 47E -03	
UNSATURATED PORE VELOCITY (m/y)	2.4390E-01	
DECAY CONSTANT(S) (1/y)	9.8 458E-1 0	
RETARDATION FACTOR(S) (SATURATED)	1.2400E+01	
RETARDATION FACTOR (UNSATURATED)	3.7805E+00	
SOLUBILITY LIMITED MASS (mg)	5.0489E+11	
SOLUBILITY LIMITED ACTIVITY (Ci)	1.0919E+03	
TRANSIT TIME IN UNSAT ZONE (years)	8.9900E+01	
FRACTION DECAYED DURING UNSAT TRANSPORT 8.8514E-08		
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>>> EXPOSURE DATA FOR LIMITING SOI	L CONCENTRATION	
**********	*******	
INTEGRATION TIME (years)	30	
BODY WEIGHT (kg)	7.000E+01	
AVERAGING TIME (days)	2.550E+04	
WATER INTAKE RATE (L/d)	2.000E+00	
EXPOSURE FREQUENCY (days/year)	3.500E+02	
EXPOSURE DURATION (years)	3.000E+01	
RADIOLOGICAL DOSE LIMIT (rem/y)	4.000E-03	
CARCINOGENIC RISK CRITERIA	1.000E-04	
HAZARD QUOTIENT	1.000E+00	

#### >>> RESULTS OF CALCULATIONS

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CARCINOGENIC RISK CALCULATION FOR RADIONUCLIDES

MAXIMUM GW CONCENTRATION FOR MBR #1: 9.38E-14 Ci/L

AVERAGE GW CONCENTRATION FOR MBR #1: 8.81E-14 Ci/L RISK = 8.70E-08

MAXIMUM CARCINOGENIC RISK: 8.70E-08

LIMITING PARENT GROUNDWATER CONC. (Ci/L): 1.01E-10

PEAK TIME (y):

9.085228E+01

LIMITING SOIL CONCENTRATION (Ci/m**3): 4.735E-03

LIMITING SOIL CONCENTRATION (Ci/kg): 3.156E-06

LIMITING INVENTORY IN SOIL (Ci): 2.540E-01

LIMITING INVENTORY IN SOIL (mg): 1.175E+08

SPECIFIC ACTIVITY (Ci/g): 2.163E-06